

The logo for ACTRC, with 'ACT' in blue and 'RC' in red, set against a background of large, overlapping geometric shapes in blue, red, and grey.

ACTRC

Attained Curriculum

Curriculum which indicates the knowledge, understanding, skills and attitudes that learners actually acquire as a result of teaching and learning, assessed through different means and/or demonstrated in practice.

UNESCO IBE Glossary of Curriculum Terminology, 2013, p 6

Review of the Attained Curriculum

MARCH 2021

ACTRC is a partnership between the University of Melbourne and the University of the Philippines, supported by the Australian Government.

This report was authored by:

Pam Robertson

Thida Kheang

Therese Bustos

Field Rickards

Marlene Ferido

Louie Cagasan

Julie Dela Cruz

Jeneva Vergara

Junice Nepomuceno

Suggested citation for the report:

Robertson, P., Kheang, T., Bustos, T., Rickards, F., Ferido, M., Cagasan, L., Dela Cruz, J. Vergara, J. & Nepomuceno, J. (2021). *Review of the Attained Curriculum*. Assessment Curriculum and Technology Research Centre (ACTRC).

Acknowledgements

ACTRC thanks the following for their support:

Australian Department of Foreign Affairs and Trade for funding this project.

Philippine Department of Education, particularly the Bureau of Educational Assessment, led by Dr Nelia Benito, Director and Abelardo Medes, Chief of the Educational Assessment Division.

Philippines Business for Social Progress

UP Center for Integrative and Development Studies

Disclaimer

This publication has been funded by the Australian Government through the Department of Foreign Affairs and Trade. The views expressed in this publication are the author's alone and are not necessarily the views of the Australian Government. The Australian Government neither endorses the views in this publication, nor vouches for the accuracy or completeness of the information contained within the publication. The Australian Government, its officers, employees and agents, accept no liability for any loss, damage or expense arising out of, or in connection with, any reliance on any omissions or inaccuracies in the material contained in this publication.

© Assessment Curriculum and Technology Research Centre (ACTRC), 2021

UP Campus, Diliman 1101, Quezon City

P: 632-8064680

ACTRC is a partnership between the University of Melbourne and the University of the Philippines, supported by the Australian Government



Table of Contents

Executive Summary	1
Introduction	2
Method	2
<i>Attainment of Curriculum Expectations</i>	2
Data Collection	3
Data Analysis	3
<i>Graduate Suitability for Higher Education and Employment</i>	3
Participants.....	3
Data Collection	5
Data Analysis	5
Ethical Considerations	6
Results	6
<i>Attainment of Curriculum Expectations</i>	6
Learning Areas.....	8
21 st Century Skills	11
Links to the implemented curriculum	13
Limitations of the data set	13
<i>Graduate Suitability for Higher Education and Employment</i>	14
Graduate Suitability for Higher Education	14
Graduate Suitability for Employment.....	19
Discussion	22
Conclusion	23
References	24

List of Tables

Table 1	<i>Number of Participants Interviewed from Each Higher Education Institution</i>	4
Table 2	<i>Number of Participants Interviewed from Each Company/Firm</i>	4
Table 3	<i>Phases of Thematic Analysis (Braun & Clarke, 2006)</i>	6
Table 4	<i>Proportion of Students Correctly Answering Items in Each Test</i>	7
Table 5	<i>Assessment and Learning Areas</i>	9
Table 6	<i>Proportion of Students Correctly Answering Items Assessing Each Learning Area Within the Tests</i>	9
Table 7	<i>Proportion of Students Correctly Answering Items Assessing Each 21st Century Skill</i>	12

List of Figures

Figure 1	<i>Proportion of Students Correctly Answering Items in Each Test</i>	8
Figure 2	<i>Proportion of Students Correctly Answering Items Assessing Each Learning Area Within the Tests</i>	11
Figure 3	<i>Proportion of Students Correctly Answering Items Assessing Each 21st Century Skill</i>	12

Executive Summary

In 2011, the Republic of the Philippines Department of Education (DepEd) introduced curriculum changes, known as the K to 12 Basic Education Program or Curriculum, with a hope to create a functional basic education system that would produce productive and responsible citizens equipped with the essential competencies, skills, and values for life-long learning and employment. The K to 12 Curriculum, in particular, aims to prepare graduates for four possible pathways: (1) higher education, (2) middle-level skills development, (3) employment, and (4) entrepreneurship. When the rollout of the curriculum changes was completed by the end of the School Year (SY) 2017-2018, a comprehensive curriculum review, known as the Curriculum Review Project, began. The purpose of the review was to provide an evidence-base that could be used to inform future curriculum and policy decision-making and to build the capacity of relevant bureaus within the Department of Education (DepEd) to help them independently conduct high-quality reviews in the future.

The Curriculum Review Project comprises five components: (1) Intended curriculum, (2) Implemented curriculum, (3) Tested curriculum, (4) Attained curriculum and (5) Application of research findings to policy. This report presents the results of the Review of the Attained Curriculum, which deals with the fourth component of the project. The Review of the Attained Curriculum investigated two different sources of evidence: firstly, student test results on national tests at Grades 3, 6, 10 and Senior High School (SHS); and secondly, the experiences of higher education representatives and employers regarding the suitability of the K to 12 graduates for higher education and employment, gathered using focus group discussions.

The Review of the Attained Curriculum provides critical evidence that students are not attaining skills and knowledge at levels expected by the intended curriculum. The review of the national test results reveals that students achieved consistently low levels of attainment at Grades 3, 6, 10, and SHS. These findings are congruent with those of the focus group discussions with higher education professionals and employer representatives, indicating that graduates of the K to 12 Curriculum lack the foundational understanding expected for higher education and employment. Results for the 21st century skills subject areas follow a similar trend to that of the overall levels of attainment, with all pieces of evidence in this review indicating that the K to 12 student attainment is similarly lower than the expectations in the curriculum. Higher education providers also expressed concern about the lack of 21st century skills among the K to 12 graduates, and data from focus group discussions with employers indicated no observable difference in 21st century skills between graduates of the K to 12 Curriculum and those of the K to 10 Basic Education Curriculum.

The Review of the Attained Curriculum highlights that the lack of the foundational knowledge and skills aimed for in the curriculum has a negative impact on the future of students, both those going on to higher education and those moving directly into employment. Higher education institutions and employers have felt the need to provide additional support to K to 12 graduates through post-school bridging courses and in-house training programs. Both higher education and employer representatives expressed the importance of further improvements within the K to 12 Curriculum to better support students achieve the curriculum expectations.

Introduction

Many countries in the world have introduced changes to their education systems to equip learners with the knowledge and skills required to cope with the rapid changes of the educational, economic, social, cultural and political landscapes of the 21st century (Dougherty et al., 2006). The Republic of the Philippines is no exception. In 2011, the Department of Education (DepEd) introduced major curriculum changes in the hope of creating a functional basic education system that would produce productive and responsible citizens equipped with the essential competencies, skills and values for life-long learning and employment. The changes led to the passing of the Republic Act No. 10533 (Enhanced Basic Education Act of 2013).

This Act articulates the curriculum changes that shifted a 10-year education system to a 13-year education system known as the K to 12 Basic Education Program or Curriculum. The K to 12 Program consists of one year of kindergarten education, six years of primary education, four years of junior high school, and two years of senior high school. It aims to provide sufficient time for learners to master concepts and skills and to develop as lifelong learners, and, in particular, to prepare graduates for four possible pathways: (1) higher education, (2) middle-level skills development, (3) employment, and (4) entrepreneurship (Enhanced Basic Education Act of 2013). Further, the additional two years mean that students will already reach the employable age for the formal sector by the time they graduate from SHS as they are supposed to start their senior high school at the age of 16 years old.

When the rollout of the K to 12 Program was completed by the end of the School Year (SY) 2017-2018, the comprehensive Curriculum Review Project began. The purpose of the review was to provide an evidence-base which could be used both to inform future curriculum and policy decision-making and to build the capacity of relevant bureaus within the Department of Education (DepEd), enabling them to independently conduct high-quality reviews in the future.

The continuing Curriculum Review Project comprises five components, namely, (1) Intended curriculum, (2) Implemented curriculum, (3) Tested curriculum, (4) Attained curriculum, and (5) Application of research findings to policy. This report focuses on the Review of the Attained Curriculum, which deals with the fourth component of the project. Attained curriculum is the 'knowledge, understanding, skills and attitudes that learners actually acquire as a result of teaching and learning', (UNESCO International Bureau of Education, 2013, p. 6).

The Review of the Attained Curriculum used two different sources of evidence to examine the attained curriculum. The first source was student test results on national tests at Grades 3, 6, 10 and Senior High School and the second source was views provided by representatives from higher education and employers on the levels of attainment of K to 12 graduates. This review considered the following guiding questions.

1. To what extent do students attain the expectations of the K to 12 Curriculum as shown by the national tests?
2. What are the perspectives of representatives from higher education and employment on the suitability of graduates of the K to 12 Curriculum?

Method

The Review of the Attained Curriculum was conducted as two separate studies: a quantitative study which reviewed the attainment of curriculum expectations via national test data, and a qualitative study which explored the suitability of the K to 12 graduates for higher education and employment.

Attainment of Curriculum Expectations

The Review of the Attained Curriculum used cohort results from the following tests:

- Grade 3 Early Language, Literacy and Numeracy Assessment (ELLNA), SY 2017-2018

- Grade 6 National Achievement Tests (G6 NAT), SY 2017-2018
- Grade 10 National Achievement Tests (G10 NAT), SY 2017-2018
- Grade 12 Basic Education Exit Assessment (BEEA), SY 2018-2019

This scope was chosen as it is consistent with the scope of the Review of the Tested Curriculum and provides an insight into the abilities of the cohorts of students taking each of these tests. As the tests are mapped directly to the intended curriculum, they are suitable for use to gauge curriculum attainment. It should be noted, however, that the G6 NAT, G10 NAT and BEEA selectively sample parts of the intended curriculum that require the use of 21st century skills. This means that they give an additional indication of student attainment of the 21st-century skills of communication, problem solving and critical thinking as they are manifest within subject-specific learning competencies.

Data Collection

The data collection was carried out during the workshop held for the Review of Tested Curriculum (January 13-17, 2020). During the workshop, participants from the DepEd BEA-Education Assessment Division (EAD) provided ACTRC with cohort-level data for each test. Discussions were also held to acquaint ACTRC staff with the typical analysis processes carried out with the data.

Data Analysis

The purpose of the quantitative data analysis was to establish the extent to which students had attained curriculum expectations. The cohort-level data consisted of the percentage of students within the cohort correctly responding to each item within the tests. As each item is mapped to both learning competencies within the K to 12 Curriculum and the 21st-century skills framework, the analysis was able to use each of these lenses to examine curriculum attainment. All analysis was conducted using RStudio (Version 1.3.959).

Graduate Suitability for Higher Education and Employment

A qualitative study was adopted in order to enable the researchers to understand the perspectives of participants (Hennik, Hutter, & Bailey, 2011), and, in this case, those of education providers and employers on the suitability of graduates of the K to 12 Curriculum for higher education and employment. Two questions were formulated to guide the study:

1. What are the perspectives of higher education providers on the preparedness of graduates of the K to 12 Curriculum for higher education?
2. What are the perspectives of employers on the preparedness of graduates of the K to 12 Curriculum for employment?

Participants

Consistent with the qualitative research design, the purposive selection approach was employed to select participants for the study. This approach offers a deliberate and flexible method of choosing the appropriate context, events, or individuals due to the crucial information they can provide (Bryman, 2012). It especially facilitates a selection of data-rich cases to generate in-depth understanding and insight into the phenomena being questioned. The study involved two different groups of participants: higher education providers and employers.

Higher Education Providers

The study engaged seven higher education representatives who were selected from three layers of the higher education system: university, college and professional institute. The selection included both public-funded and private higher education institutions. The intention was that two representatives (institutions) from each layer should be chosen for the study, but only one professional institute was available to

participate. The selection of participants involved several steps. After determining clear selection criteria, the research team contacted the higher education institutions which were considered to have met the selection criteria to participate in the study. An email, along with an invitation letter and Plain Language Statement (PLS) which explained the nature of the study and the participation of each institution in the study, was sent to the associated higher education institutions. If they were willing to take part in the study, they were requested to nominate at least one representative. Table 1 presents the number of participants participating in the study from each higher education institution and layer.

Table 1
Number of Participants Interviewed from Each Higher Education Institution

Participants	Institutions/College/Locations	Layers
Participant 1	University of Philippines, Diliman	State University
Participant 2	University of Philippines, Visayas	State University
Participant 3	Mindanao State University	State University
Participant 4	De La Salle – College of Saint Benilde	Private College
Participant 5	Mindanao State University, Tawi-Tawi	State University
Participant 6	Technological Institute of the Philippines	Private Professional Institute
Participant 7	St. Louis University	Private University

Employers

The study aimed to include businesses or firms representing different industry sectors. The research team requested assistance from Philippine Business for Education (PBE) and the Philippine Chamber of Commerce and Industry (PCCI) who have members active in supporting SHS programs or an interest in working with DepEd. Once the firms or companies were identified as suitable for the study, the research team sent them an invitation letter and PLS via email to explain the purpose of the study and their expected participation in it. The companies willing to take part were asked to nominate at least one representative, and some companies had two representatives participating in the study. Table 2 lists the number of representatives from each company. It can be seen that more participants were from food-oriented companies. Representatives from the hotel and resort industry had agreed to partake in the focus group, but they could not make it due to Typhoon Goni.

Table 2
Number of Participants Interviewed from Each Company/Firm

Companies/Firms	Type of Companies/Firms	Number of Representatives
Company A	Business Processing Organisation	2
Company B	Retail Industry	1
Company C	Food Manufacturing Industry	1
Company D	Food Manufacturing Industry	2

Data Collection

The study used the focus group method to collect data because it supports the qualitative research approach and the aim of the study, which was to explore the suitability of graduates of the K to 12 Curriculum for higher education and employment. A focus group discussion involves an interactive discussion of a small group of participants, led by a trained moderator/facilitator, and focuses on a specific theme or topic that is explored in-depth (Bryman, 2012; Hennik et al., 2011). Its primary purpose is to gain a broad range of perspectives on the topic being investigated. As mentioned, this study involved two different groups of participants: higher education providers and employers.

Higher Education Providers

One focus group discussion was undertaken with a group of seven higher education representatives via a Zoom meeting on 8th October 2020. A discussion guide was used by an experienced moderator to facilitate the discussion and keep it focused on the topic. The discussion guide explored the perspectives of higher education providers on the readiness of graduates of the K to 12 Curriculum for higher education. The discussion was also joined by three researchers from the Assessment Curriculum and Technology Research Centre (ACTRC) who observed and participated in some parts of the discussion. It was conducted mainly in English, with a minor contribution of a local language. It lasted an hour and was recorded with the permission of participants, who were asked to sign consent forms before the start of the discussion.

Employers

Two focus group discussions were conducted with six participants from four firms or private companies via a Zoom meeting, with each discussion joined by three researchers from ACTRC. The first discussion took place on 8th October 2020, involving three participants from the business processing organization and retail industry. The next discussion occurred on 13th October 2020 and involved three participants from two food manufacturing firms. The discussions were facilitated by an experienced researcher who used a discussion guide to moderate the discussions and keep them focused on the topic. The discussion guide focused on exploring the perspectives of employers on the readiness of graduates of the K to 12 Curriculum for employment. The discussions were conducted mainly in English, with a minor contribution of a local language, and were recorded with the permission of participants, who were asked to sign consent forms before the start of the discussion. Each discussion lasted an hour.

Data Analysis

Braun and Clarke's thematic analysis approach was adopted to analyse the qualitative data from focus groups because it enables the researchers to identify and analyse interview passages linked by a common theme, and to categorise them in order to establish a theoretical framework (Braun & Clarke, 2006). This approach involves a process of encoding qualitative data into codes and themes. Themes can be derived from prior knowledge and an understanding of the phenomenon being studied (deductive or a priori approach) or can emerge from the data (inductive approach). In this study, a priori themes generated from the pre-existing literature on access to and quality of learning and teaching materials were used as a starting point. Other themes emerged during the course of the data analysis carried out by the researchers.

All focus group discussions were transcribed and translated into English for analysis using Microsoft Stream and NVivo transcription software, and the research team members cross-checked and edited the transcripts for quality assurance. Then the researchers began the analysis, involving a process of constant moving back and forth between the whole data set, the coded data being analysed, and the analysis of the data being produced. Table 3 presents a summary of the phases of thematic analysis proposed by Braun and Clarke (2006).

Table 3
Phases of Thematic Analysis (Braun & Clarke, 2006)

Phases	Description of the processes
Familiarising oneself with data	Repeated reading of the data and taking notes on initial ideas
Generating open codes	Producing coding features of the data in a systematic way across the entire data set
Searching for themes	Collating codes into potential themes and collecting all relevant coded data within the identified themes
Reviewing themes	Checking and redefining the collated themes against the individual interview transcripts and the complete data set and creating a 'thematic map' of analysis
Defining and naming themes	Examining the thematic map and organising themes into a coherent and internally consistent account
Producing the report	Choosing examples from the transcribed data to illustrate elements of the themes and respond to the research questions

Ethical Considerations

The study was carried out with ethics approval from the University of Melbourne's Human Research Ethics Committee, required for all research activities that involve human subjects. Permission to conduct the study was also approved by the Philippines Department of Education via Memorandum No. 130, s. 2019. Plain Language Statement (PLS) and consent forms were created as part of the ethics application. A PLS explains the nature and purpose of the research along with matters relating to privacy, confidentiality, and anonymity. Consent forms show that participants are willing to participate in the study. PLS and consent forms were distributed to respective institutions and participants, with a request to return the signed consent forms to the researchers to indicate a willingness to participate in the study. All participants were made fully aware that participation in the study was voluntary and that they could withdraw at any time before the publication of the findings, without negative consequences. All data obtained from the participants and the emerging products of analysis were reported in a manner that protected their anonymity.

Results

The Review of the Attained Curriculum examined two separate studies. The quantitative study reviewed the attainment of curriculum expectations via national test data and the qualitative study explored the suitability of K to 12 graduates for higher education and employment. Therefore, the results of both studies are presented separately.

Attainment of Curriculum Expectations

To provide a general overview of the performance of students on the national tests, the proportion of students correctly answering each item was summarised. The results are shown in Table 4. The first column of the table names the test and the second shows the number of items in each test. The next two columns summarise the performance of students across test items, with the third column showing the mean and the fourth column the standard deviation. The final two columns in the table show the

proportion of students correct on each test for the most difficult and easiest items respectively. The relative difficulty of test items was determined only by the proportion of students giving correct responses.

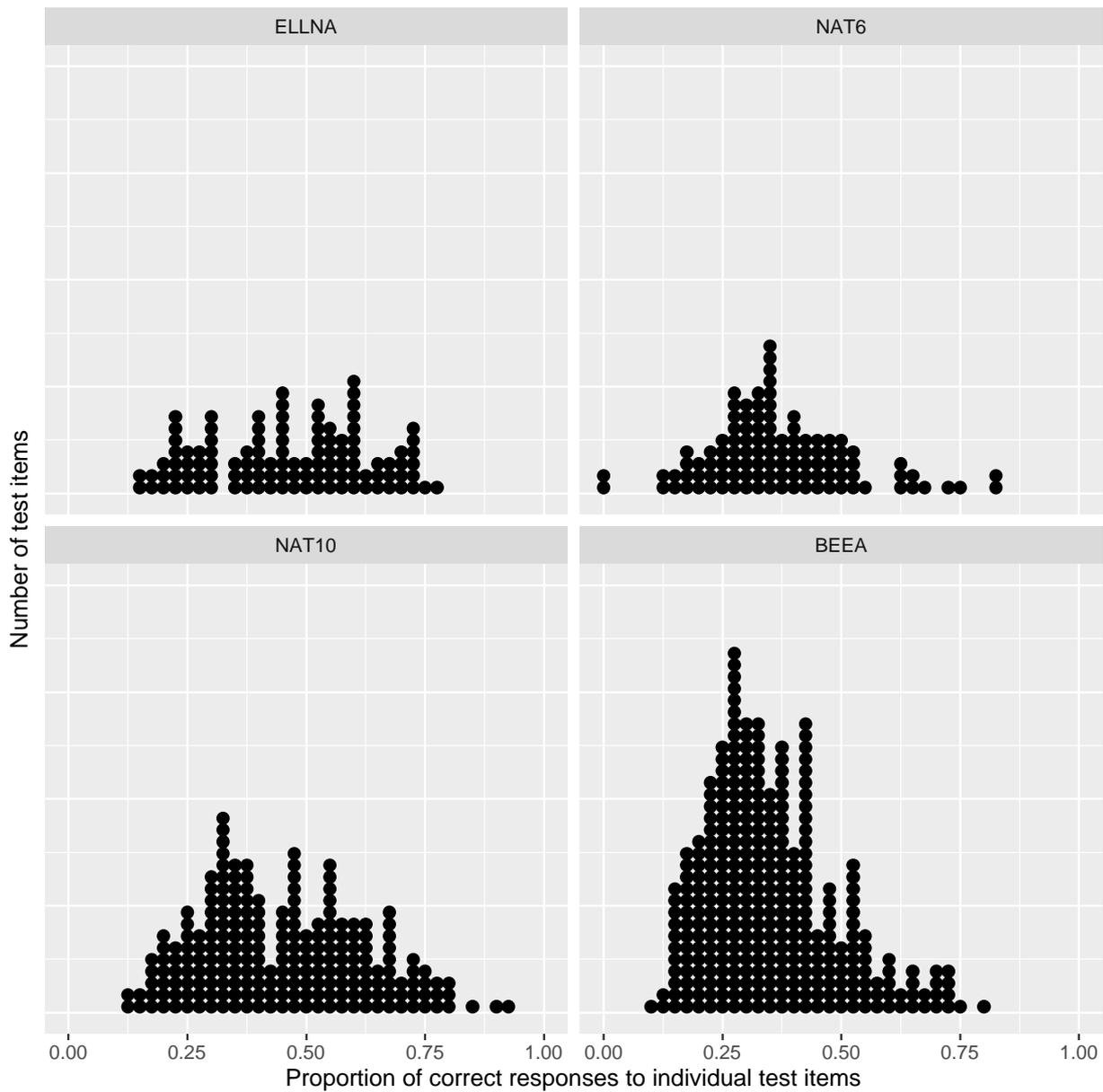
Table 4
Proportion of Students Correctly Answering Items in Each Test

Test	Number of test items	Mean	Standard deviation	Proportion answering most difficult item correctly	Proportion answering easiest item correctly
ELLNA	110	0.46	0.17	0.15	0.77
NAT6	108	0.34	0.13	0	0.83
NAT10	216	0.42	0.16	0.13	0.93
BEEA	318	0.35	0.14	0.1	0.8

This table shows that, on average, less than half the students can answer a test item correctly. When taken at the broadest level, these results indicate that most students are not able to answer the test questions correctly. The mean proportion of students answering an item correctly varies from a low of 0.34 (34%) on the G6 NAT to a high of 0.46 (46%) on the ELLNA. The most difficult item on each test is only able to be answered correctly by between 0% and 15% of students and the easiest item on each test is only able to be answered by between 77% and 93% of students.

Histograms were drawn of the proportion of students correctly answering each item to illustrate student performance more thoroughly. These are shown in Figure 1. In these plots, each dot represents a single item. It can be seen from the number of dots that the ELLNA has fewer items than the G6 and G10 NAT and that the BEEA has the most items. While the items in the ELLNA are evenly distributed across the difficulty range, the G6 and G10 NAT and BEEA tests have many more items that students find difficult, with proportions correct at less than 0.5. The G6 NAT shows the greatest mismatch between student ability and item difficulty, with a mean proportion correct of 0.34 and the vast majority of items being able to be answered correctly by less than 50% of students.

Figure 1
Proportion of Students Correctly Answering Items in Each Test



As the Review of the Tested Curriculum (Robertson, et al., 2021) found, the test items are shown to map to the curriculum, and these results show that students found it difficult to demonstrate mastery of the curriculum expectations at all key stages.

Learning Areas

The national tests are broad tests assessing skills and knowledge from different learning areas. The specific areas assessed by each test are shown in Table 5.

Table 5
Assessment and Learning Areas

Assessment	Learning Areas
Early Language, Literacy and Numeracy Assessment (ELLNA) for Grade 3	English, Filipino, Mathematics
National Achievement Test (NAT) for Grade 6	Mathematics, English, Filipino, Science, and Araling Panlipunan
National Achievement Test (NAT) for Grade 10	Mathematics, English, Filipino, Science, and Araling Panlipunan
Basic Education Exit Assessment (BEEA) for Grade 12	Language and Communication, Humanities, Mathematics, Science, Social Science, Philosophy, and Media and Information Literacy

To examine the performance of students in the different learning areas, the proportion of correct responses per learning area was examined using the same analyses as for the previous sections. The summary statistics are shown in **Table 6**, and in the histograms in Figure 2

Proportion of Students Correctly Answering Items Assessing Each Learning Area Within the Tests

Table 6
Proportion of Students Correctly Answering Items Assessing Each Learning Area Within the Tests

Learning Area	Subject	Test	Mean	Standard deviation	Proportion answering most difficult item correctly	Proportion answering easiest item correctly
Araling Panlipunan	Araling Panlipunan	NAT6	0.35	0.1	0.17	0.62
Araling Panlipunan	Araling Panlipunan	NAT10	0.51	0.14	0.18	0.79
Araling Panlipunan	Introduction to the Philosophy of the Human Person	BEEA	0.35	0.13	0.15	0.7
English	English	ELLNA	0.47	0.12	0.24	0.73
English	English	NAT6	-	-	-	-
English	English	NAT10	-	-	-	-
English	21st Century Literature from the Philippines and the World	BEEA	0.34	0.11	0.14	0.56

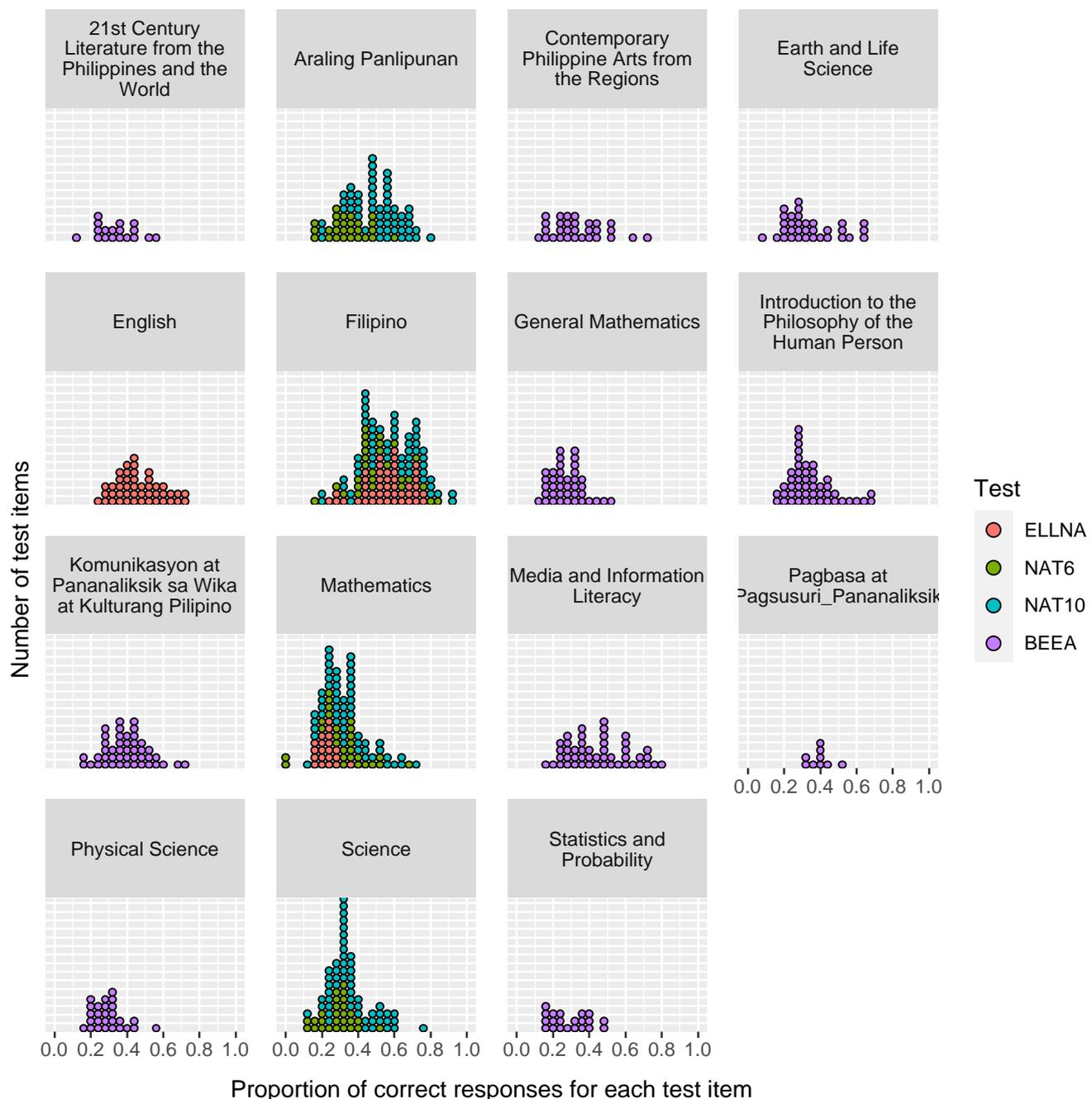
Filipino	Filipino	ELLNA	0.56	0.13	0.23	0.77
Filipino	Filipino	NAT6	0.51	0.16	0.16	0.83
Filipino	Filipino	NAT10	0.58	0.17	0.21	0.93
Filipino	Komunikasyon at Pananaliksik sa Wika at Kulturang Pilipino	BEEA	0.4	0.12	0.15	0.71
Filipino	Pagbasa at Pagsusuri_Pananaliksik	BEEA	0.4	0.06	0.33	0.53
MAPEH	Contemporary Philippine Arts from the Regions	BEEA	0.34	0.15	0.12	0.71
Mathematics	Mathematics	ELLNA	0.23	0.05	0.15	0.35
Mathematics	Mathematics	NAT6	0.32	0.14	0	0.67
Mathematics	Mathematics	NAT10	0.34	0.13	0.13	0.71
Mathematics	General Mathematics	BEEA	0.28	0.09	0.12	0.53
Mathematics	Statistics and Probability	BEEA	0.29	0.1	0.16	0.48
Science	Science	NAT6	0.29	0.09	0.12	0.52
Science	Science	NAT10	0.37	0.13	0.14	0.76
Science	Earth and Life Science	BEEA	0.34	0.14	0.1	0.66
Science	Physical Science	BEEA	0.3	0.09	0.18	0.57
Technology	Media and Information Literacy	BEEA	0.45	0.16	0.17	0.8

Note: proportions of answers correct for English within the G6 and G10 NAT were not available to ACTRC.

The variations in the mean proportion of correct student responses suggest differences in the achievement of different learning areas, and the small histograms in Figure 2 are ordered according to the mean for each learning area. However, these results must be interpreted with caution as it is not possible to know if the variation derives from differences in the quality of learning in the different areas, or if it is an artefact of the specific items on these tests.

Figure 2

Proportion of Students Correctly Answering Items Assessing Each Learning Area Within the Tests



Note: proportions of answers correct for English within the G6 and G10 NAT were not available to ACTRC.

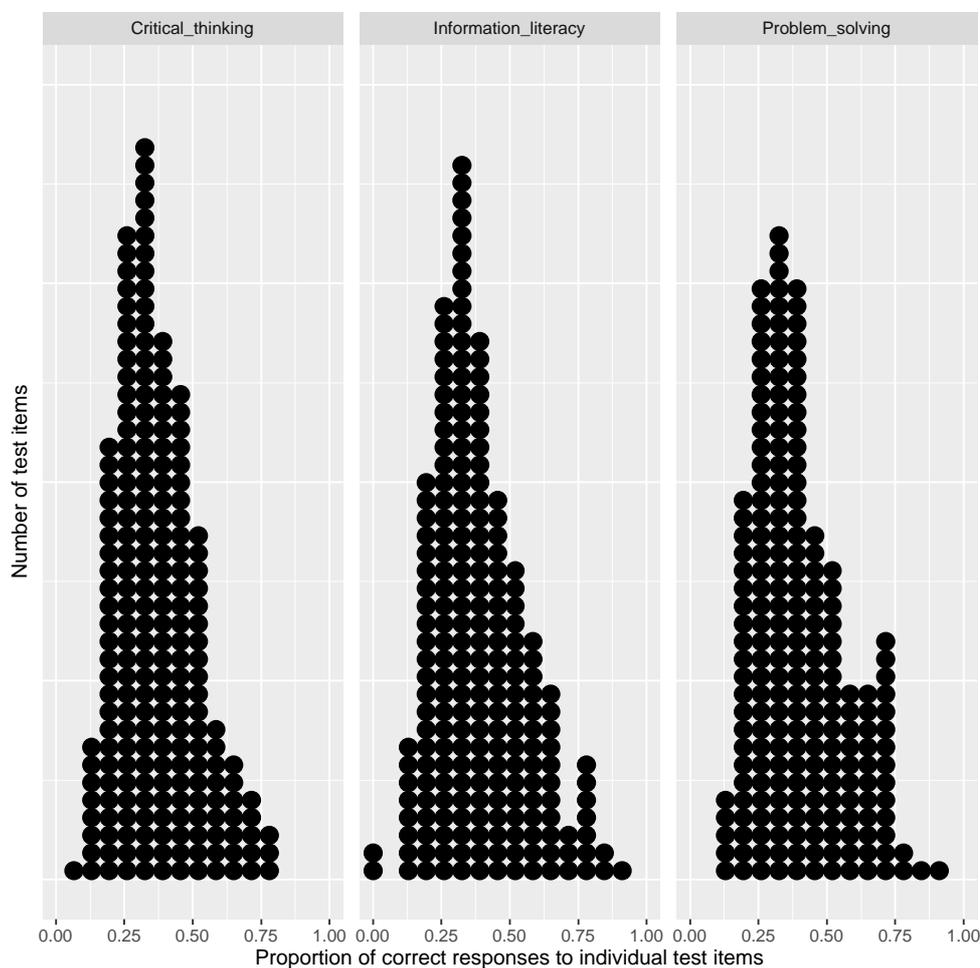
21st Century Skills

In addition to noting the learning competency assessed by each national test item, each item was also mapped to the 21st century skills framework developed by the Bureau of Educational Assessment (BEA). The development of the three 21st century skills within the BEA framework was explored using analyses equivalent to those conducted for the national tests. Summary statistics for each 21st century skill are shown in Table 7 and the histograms are shown in Figure 3. The information in the table and figure shows that there is little difference in the performance of students across the three different 21st century skills assessed in the tests.

Table 7*Proportion of Students Correctly Answering Items Assessing Each 21st Century Skill*

21 st Century Skill	Number of items	Mean	Standard deviation	Proportion answering most difficult item correctly	Proportion answering easiest item correctly
Critical thinking	216	0.37	0.14	0.1	0.78
Information literacy	216	0.39	0.17	0	0.91
Problem solving	210	0.4	0.16	0.12	0.93

Figure 3 shows the pattern of performance across the three 21st century skills is similar to the overall performance in the national tests. This highlights that student attainment is also a problem in all three 21st century skills that make up the BEA assessment framework. The generally low proportions of students able to correctly answer the items assessing the various 21st century skills indicate that students are not able to demonstrate these skills in the context of the subject-specific questions included in these tests. These results suggest that students are not meeting the curricular expectations in the development of 21st century skills.

Figure 3*Proportion of Students Correctly Answering Items Assessing Each 21st Century Skill*

Links to the implemented curriculum

To explore the impact of the implemented curriculum on the attained curriculum, test items were matched to survey data collected from teachers as part of the Review of the Implemented Curriculum. Of the 752 assessment items included in this Review of the Attained Curriculum, 172 were able to be matched to implementation data from teachers via the learning competency assessed by the item. These 172 items assessed learning competencies that were taught within the sample of subjects, grades and quarters for which teacher data was collected.

The pattern of teacher responses for those learning competencies assessed within the national tests was compared to the pattern for learning competencies not assessed by the same tests. The purpose of this comparison was to explore possible relationships between the tests and the classroom teaching. The classroom teaching data comprised teacher perceptions related to:

1. the time available to teach the learning competencies
2. whether students had the prerequisite skills and knowledge necessary for acquiring each learning competency.

The classroom teaching data for each learning competency was compared to the student response data for each learning competency assessed on the national tests. If systematic differences were found, this could indicate that teachers were prioritizing teaching of those learning competencies assessed by the national tests, a detrimental phenomenon known as 'teaching to the test'. No clear trends were found in this analysis, with variations occurring across learning areas, grades and quarters. This indicates that teaching to the test is not a widespread phenomenon, suggesting that it is likely that the tests provide an accurate representation of student attainment across the curriculum.

Limitations of the data set

Limitations to the data available restricted the ways in which data could be analyzed:

- Only the proportion of students correctly answering each item was available. There was no data available about the distribution of students across the multiple-choice options, which prevented any analysis of the psychometric quality of the test items being conducted.
- Tests given at different key stages were designed independently of each other, with no common items present across tests. Therefore, no analysis could be conducted to check for increasing competence across the key stages of schooling.
- Tests given in each year, while following the same test blueprint, share no common items, nor are any linking studies carried out. This prevents the performance of different cohorts from year to year being compared and prevents DepEd from tracking changes across the years.
- While the test blueprints stated the learning competencies that were to be assessed by the test items, the learning competency codes and descriptions were sometimes incorrect, or were only partial matches to those in the curriculum guides. In some cases, it appeared that changes had been made to the curriculum guides and had not been updated within the test blueprints. In other cases, it was clear that the description of the learning competency had been modified with the intent of clarifying the competency, often in line with recommendations for learning competency changes suggested during the Review of the Intended Curriculum. When exact matches could not be made, researchers resorted to interpretation to make links between the test items and the curriculum guides where possible, using both the learning competency code and description.

Graduate Suitability for Higher Education and Employment

The qualitative study offered insightful views on the suitability of graduates of the K to 12 Curriculum for higher education and employment. The views from each group of stakeholders are presented separately.

Graduate Suitability for Higher Education

The discussions with the representatives of higher education institutions provided broad perspectives on the readiness of graduates of the K to 12 Curriculum for higher education. The perspectives can be categorized into the following themes: involvement of higher education institutions in the implementation of the K to 12 Curriculum, impacts of the K to 12 Curriculum on higher education, the preparedness of graduates of the K to 12 Curriculum for higher education, and ways to improve the implementation of the K to 12 Curriculum.

Involvement of Higher Education Institutions in the Implementation of the K to 12 Curriculum

Data from the focus group indicated that higher education institutions have played an important role in the process of introducing the K-12 curriculum in various ways. Frequently they assist senior high schools in designing the curriculum. Most higher education institutions in the study are attached to senior high schools, often with an academic track such as Accounting, Business and Management (ABM), Humanities and Social Sciences (HUMSS), Science, Technology, Engineering and Mathematics (STEM) and/or General Academic track. Only a limited number of strands within a track are offered, with a particular concentration on those related to areas in which they have strong expertise. Participants explained that the K to 12 Curriculum involved introducing some specialised subjects beyond the design expertise of teachers at their attached schools. Some faculty members from associated colleges and centres in their institutions were assigned to work with the schools to engineer curricula that not only responded to the DepEd's curriculum guidelines, but also aligned with the expectations of higher education providers and employers.

Higher education institutions also provided relevant professional development (PD) for senior high school (SHS) teachers. This PD generally focused on two major aspects: pedagogical content knowledge, and content knowledge of the subject matter. The participants highlighted that curriculum changes require new ways of delivering instructional activities, and teachers in the attached SHSs were keen on introducing new ways of teaching aligned with the new curriculum but often lacked knowledge of such new approaches. In addition, those teachers who taught specialised subjects were reported to have limited knowledge about them, which could constrain their ability to deliver the curriculum effectively. To help teachers address the problems, some associated faculty members designed and delivered PD activities to the teachers, mainly concentrated on learner-centred teaching approaches considered consistent with the K to 12 Curriculum, and on building competence of teachers in the associated learning areas. It should be noted that some higher education professionals were also involved in providing PD to public schools more broadly via collaboration with the regional and/or division offices.

Faculty members in some universities or colleges, especially those involved in designing the SHS curriculum, were reportedly assigned to teach some specialised subjects in their attached SHSs due to the lack of teachers able to deliver those subjects. Their presence was viewed positively by the participants in that it created an opportunity for teachers at the school level to benefit from the faculty members professionally because both groups of teachers were expected to have some professional collaborations. While some faculty members were tasked to teach the subjects temporarily, others are still teaching these subjects.

Some higher education professionals in the study took part in the process of designing and implementing the K to 12 Curriculum by being part of the technical working group of DepEd that dealt with this at the national level. Others assisted some regional division offices in designing and implementing different activities associated with the curriculum.

Impacts of the Implementation of the K to 12 Curriculum on Higher Education Institutions

As the study revealed, the introduction of the K to 12 Curriculum has impacted the operation of higher education in various ways. First, the implementation of the K-12 Curriculum necessitated higher education institutions reviewing and revising their general education and undergraduate programs to make them align with the curriculum. In some programs, the revision mainly focused on reducing the number of units and subjects because some had already been taught to students during their SHSs. One participant commented on the situation:

Because there was a change in the curriculum there was also an opportunity for the colleges offering the General Education Program courses to review the courses. Before the General Education Program used to be a skill-based course. Because of the changes in the K to 12 Curriculum, it evolved into more than a skills-based course. It provided more discourse for other topics, for deeper discourse on several topics ... we made our General courses outcomes-based that led to an overhaul of the curriculum of all the undergraduate degree programs. With that overhaul came an articulation of the program learning outcomes of each of the degree programs (Higher Education (HE).2).

Some participants also cited examples of an undergraduate Engineering programme being reduced from five years to four years.

Higher education institutions also made PD opportunities accessible to faculty members to help them prepare for the curriculum changes. One common PD opportunity was associated with upgrading the capacity of junior faculty members by offering them graduate degrees or short courses relevant to their fields. Many participants viewed such professional development opportunities as a win-win solution, explaining that they had occurred when universities had very low enrolments, and faculty members thus had less workload. The number of student enrolments reportedly dropped dramatically until the batch of the K to 12 Curriculum students graduated, although in some universities this situation was compensated for by the number of transferees. One participant commented on this situation:

Apparently, we admitted more transferees during these two years when there were fewer freshmen. Then the university made use of these two years, which we describe as the lean years, to send out our faculty members to do graduate program studies. So, we had that program implemented in the university where the academic units were encouraged to send out their junior faculty members to finish their masters and finish their doctorate program because of this decrease in the enrolment of students (HE.2).

Higher education institutions also had to adjust their admission requirements to match graduates of the new K to 12 Curriculum. There was an indication from the study that graduates of the K to 12 Curriculum from SHSs attached to a university or college were not required to take admission tests, justified by the fact that these students had studied the curriculum aligned with that of the university or college and therefore met admission requirements. However, students from different SHSs are still required to take admission tests. It was also reported that admission tests had been revised to be compatible with the new SHS curriculum, although the changes were not elaborated.

Preparedness of Graduates of the K to 12 Curriculum for Higher Education

When asked about the preparedness of graduates of the K to 12 Curriculum for higher education, participants generally associated this with the school from which students had graduated, the track they studied, and the learning experiences they gained. Participants explained that while all schools were supposed to adopt the curriculum proposed by DepEd, how they implement it may differ. Some schools may implement the curriculum more effectively than others by offering more meaningful and relevant learning experiences to their students. They also drew attention to differences between the implementation of the curriculum in public and private schools, explaining that private schools may be able to do this more effectively due to more availability of relevant expertise and resources. They also noted the differences between regions and divisions, with some experiencing a shortage of resources for implementing the curriculum, or being areas where students are broadly perceived as having lower

literacy rates than elsewhere. These differences can, they held, have an impact on the learning experiences of students, and especially their readiness for further education.

Participants also offered more specific views on the readiness of graduates. One key feature of the K to 12 Curriculum is the provision of the additional two years of SHS, which aims to provide more time for learners to consolidate knowledge, skills and competencies, and to prepare them for the future paths of higher education, middle-level skills development, employment and entrepreneurship (Enhanced Basic Education Act of 2013). Most participants viewed the additional two years positively, illustrating that it has helped students become more mature and responsible in their learning compared to those of the earlier K to 10 Basic Education Curriculum. The newer graduates were also reported to have better research skills and be more reflective in their research assignments.

At the same time, participants highlighted areas that graduates of the K to 12 Curriculum lacked. Most participants saw little or no difference between the graduates of the K to 12 Curriculum and those of the K to 10 Curriculum in terms of readiness for higher education, indicating that many of the current graduates lacked the essential foundational knowledge required to perform effectively in their subjects. They referred to the foundational knowledge considered essential for successful study at university in Mathematics, Chemistry, Physics, and languages. Participants also expressed concern regarding the lack of communication skills among the students, noting that many were not able to communicate well and lacked presentation skills.

The lack of foundational knowledge, participants strongly argued, is associated with how the curriculum is implemented in schools, especially with regard to what students learn, and how they experience learning. The current curriculum is based on the spiralling approach in which students are expected to master particular concepts or skills before they move to a higher learning level in a subject. However, some students may not have had or met such a requirement when they transitioned from junior high school to SHS. As a result, they may not be able to learn what they are expected to learn in their SHS. This situation hampers their learning in higher education, evident in such different learning tracks or areas as ABM, HUMSS and STEM, and where it was stated that students were struggling with their studies without relevant enhancement or support.

Some participants raised concern about students switching areas of study, which can have an impact on their readiness for their higher education. Some students changed their study areas in college because what they studied in senior high schools was not available in the college, or vice versa. Some students changed their learning areas due to prospective market demands. The switch of learning area can be challenging as students do not then have the foundational knowledge required to master the new study area.

Participants stressed that it may not be possible for students who do not have foundational knowledge and skills to be successful in their higher education without appropriate support. One common strategy adopted by higher education institutions is to offer relevant bridging or introductory courses to help students prepare for their studies. Participants argued that the support should not only be made available to students but also be accessible to those who are involved in supporting the students in their studies as expressed by one participant:

That's why they do have to make certain scaffolding strategies such as bridging courses, ensuring more training for teachers in the tertiary level to accommodate the gaps or even to fill in certain specializations that are not in the senior high school, but not present in the college or vice versa. So, I think there were simple nuances that need to be addressed because it's very systemic (HE.3).

While recognising the importance of providing the enhancement and support for students to help them succeed in their education, some participants argued that this may be a waste of time as students have to restudy what they were supposed to study in senior high schools. Also, this situation creates extra work for faculty members.

Possible Ways to Improve the Implementation of the K to 12 Curriculum

Participants widely agreed that improving the implementation of the K to 12 Curriculum requires a systemic approach that should involve all concerned education stakeholders in the process of curriculum changes. They offered several suggestions aimed at improving the implementation of the curriculum and especially for preparing students for higher education.

Reducing the Number of Learning Competencies

Participants described the current K to 12 Curriculum as “a mile wide and inch deep curriculum” because there are many learning competencies that may not be possible for teachers to implement properly within the given timeframe. This statement supports the finding in the Review of the Implemented Curriculum that the number of learning competencies was one main cause of teachers having difficulty delivering the curriculum (Robertson et al., 2020). Reducing the number of learning competencies to an implementable size is considered by participants a possible way to address the lack of foundational knowledge and skills of graduates of the K to 12 Curriculum. They argued that the focus should be on depth rather than on the breadth of the learning content. Simply put, the learning should emphasise deepening knowledge of students in particular areas rather than trying to cover too much content. One participant offered the following explanation:

And maybe the right thing that happened to this, you know, is that DepEd goes into minimum learning competencies, reducing the fifteen thousand, almost fifteen thousand competencies to only five thousand. And maybe that's the direction, you know, that we should think in Senior High School so that we can give them more time to focus on really the most essential learning competencies. That's for Senior High school (HE.5).

The desired way to reduce the number of learning competencies is to focus on the most essential learning competencies. Participants indicated that schools were happy with the introduction of this, where teachers only taught those learning competencies considered essential. This means that there are a smaller number of learning competencies and teachers can cover them properly. It should be noted that DepEd introduced a Basic Education Learning Continuity Plan (BE-LCP) as a package of education interventions responding to the challenges brought to the basic education system by the COVID-19 pandemic. One strategic component of the plan is the nationwide adoption in the SY 2020-2021 of the Most Essential Learning Competencies (MELCs), in multiple learning modalities and platforms, as an emergency measure to enable teaching and learning to take place during challenging circumstances (DepEd, 2020).

Aligning the K to 12 Curriculum with the Higher Education Curriculum

Participants expressed concern regarding the alignment of the K to 12 Curriculum with the higher education curriculum, explaining that there are either a lot of overlapping contents or missing contents between the two curricula. This means that what is taught in the K to 12 Curriculum may be repeated at the higher education level, or that what is taught in the K to 12 Curriculum may not be consistent with the expectations of higher education. They contended that the misalignment between the two curricula may result in students not acquiring the knowledge and skills required for higher education. Participants strongly suggested that DepEd needs to work with the Commission on Higher Education (CHED) to make sure that they develop standards and contents of curricula that complement each other, and to make sure that resources are made available to enable implementation. Concerned teachers and higher education staff members should be included in the process of formulating the curricula.

Promoting Contextually Relevant Learning Opportunities for Students

The study notes a strong emphasis on promoting learning opportunities that are contextually relevant to students to facilitate the preparedness of graduates of the K to 12 Curriculum for higher education and

employment. For most participants, there is a need for DepEd to review the learning tracks and strands currently offered in SHSs, because learning options are limited in some geographical locations. Not all schools offer all strands within the learning tracks due to lack of expertise, resources, or local priorities. Participants suggested that DepEd should broaden the learning tracks and strands for SHS students, and these learning opportunities need to be made contextually relevant by responding to the needs of students and those of local communities. They held that learning options should be aligned with learning programmes offered by local universities or colleges, as students may not be able to relocate if the learning options they wish to continue studying are not available in their locale. As the study revealed, students in some geographical areas like Tawi-Tawi may not be able to move to another city for further education.

Participants drew attention to the importance of providing career guidance and counselling for SHS students to help them make informed decisions about their future studies and careers. One participant explained the situation:

I think it has something to do with the orientation being given to the students because they are not prepared to come to the university. They got the wrong program in senior high school because they were not oriented. For example, it's not AB Psychology, it's Science. So many of the different courses in the BS Psychology are actually sciences and mathematics so they're having difficulty coping. But when they enrolled in senior high school, what they got actually is HUMSS because they think that it's part of the Liberal Arts. (HE.7)

While recognising the importance of providing counselling support for students, some participants expressed concern about the operation of such services in schools. One participant explained how the lack of trained counsellors can affect service operation:

I think the problem is stemming from the [support] that's available for guidance counsellors. I think that's where the problem lies because not many people have slots... Items for guidance counsellors in the basic education level and come college, that's where the outcomes result in terms of mental health issues, particularly with the field of Guidance and Counselling and student services. It's really unclear at this point. It's very chaotic in the sense that a lot of guidance counsellors sitting or taking posts are not [trained] guidance counsellors. [They] were probably a graduate of Biology or something like that. They are not actually trained. So, there's also a problem in that aspect in the system of education and student services or welfare (HE.3).

Preparing and Developing Teachers for Curriculum Change

Participants highlighted the importance of preparing and developing teachers to help them take part effectively in the implementation of the curriculum change. Due to the immediate shift in the curriculum, teachers may not be well prepared and trained, and they may not be able to translate the change effectively. Participants argued that some teachers may have a good understanding of the contents, but they were not equipped with new pedagogical approaches that are complementary to the new curriculum. In contrast, other teachers may have a good understanding of teaching approaches, but they lack competencies in specialised subjects and an understanding of the essential curriculum change. These can all harm their ability to implement the curriculum.

It was underscored by participants that PD opportunities should be accessible to teachers working at different levels of education to help them stay on top of their work. The spiralling curriculum approach means that teachers at all levels of schooling need to be equipped with the knowledge and skills required to deliver the curriculum. Participants maintained that if teachers at a particular level of schooling fail to do their job properly, it will harm learning at another level of schooling. For some participants, continuing PD should also be made available to concerned higher education staff members because they need to understand the system of basic education. Importantly, higher education staff members need to build a symbiotic relationship with DepEd as currently a connection between the two parties is not well established.

Making Resources Available to Support the Implementation of the Curriculum

For most participants, effective implementation of the curriculum changes and preparing students for further education and employment can be successful if adequate resources are made available. They explained that teachers tried to deliver the curriculum contents and standards set by DepEd, but the lack of necessary resources and facilities hamper implementation. This situation is especially concerning for Science-related subjects, which frequently involve experimental equipment and laboratories.

Participants concluded ways to improve the implementation of the K to 12 Curriculum that regardless of the curriculum reform strategies adopted, if there is no participation from school level stakeholders the strategies will not be a success. In this regard, it is important to promote the establishment of a strong learning community and school-community relation that enables school leaders, teachers and community members to work collaboratively to implement the changes.

Graduate Suitability for Employment

Focus group discussions with employment representatives aimed to explore the suitability of graduates of the K to 12 Curriculum for employment. One major component of the SHS curriculum is to equip students with the knowledge, skills and competencies that may lead to higher education, middle-level skills development, employment and entrepreneurship (Enhanced Basic Education Act of 2013). This means that what students learn in schools should be relevant to future job requirements. The discussions with the employer representatives offered insights into how employers were involved in the implementation of the curriculum, the impacts of implementation of the K to 12 Curriculum on recruitment policy, how prepared students are for employment, and suggestions to improve the implementation of the curriculum.

Involvement of Employers in the Implementation of the K-12 Curriculum

One key involvement of employers in the implementation of the K to 12 Curriculum identified by the participants in the study relates to creating work immersion or internship opportunity for students to develop hands-on experiences and skills. Work immersion is one of the course requirements for the SHS curriculum which aims to provide learners with opportunities to become familiar with authentic work environments, acquire employment simulation, and apply their competencies in the area of specialization in real work situations (DepEd, 2017). It is hoped that these opportunities can help students make informed decisions on their further education or employment.

In 2017, DepEd issued Guidelines on Work Immersion, which expect, relevant groups of stakeholders, especially schools and Partner Institutions (PI), to work collaboratively to design and implement the work immersion program (DepEd, 2017). PIs, as indicated in the guidelines, can be public or private institutions or organizations that work with the DepEd or non-DepEd offices to host students for work immersion without monetary requirements. In response to these expectations, participants in the study stated that they worked closely with school administrators and teachers to create relevant and appropriate work immersion programs for students, ensuring alignment with the school curriculum, the curriculum guidelines, and the work immersion guidelines.

Participants indicated that building a strong partnership with schools can be of great help in coordinating the process of selection and placement of students for work immersion. Though not clearly articulated by the participants, this partnership may be more than just a signed memorandum of agreement between schools and companies to formally start their partnership. Some companies are still in their early stages of developing a mutual relationship with schools, while others have moved further in this process. For example, one company had spent the first two years of their three-year journey in building a strong partnership with schools before they embarked on the recruitment of students for work immersion.

Many companies offered enablement or information sessions to targeted demographic groups close to the recruitment period. Each session provided the necessary information about the selection processes, requirements, and job descriptions for students to be able to make informed decisions about their work

immersion choices. Students are required to go through the company recruitment assessment processes which vary from one another. Often, a recruitment process does not specify the learning track considered suitable for the particular work immersion or position available. Most companies offer work immersion or internship opportunities to students from one or more learning strands, for example, ABM and/or STEM.

The number of students recruited for work immersion at a participating business ranged from 20 to over 60, depending on the size and the nature of the company. Bigger companies can accommodate more students than smaller companies. One participant from a small company reported having 20 students who were stationed by batches with each batch having five students. Another participant from a bigger company added:

I cannot recall the number of students in the first year (SY 2018-2019) because it was very experimental. But we have a total of around 75 students that we've hired who are onboarded as senior high school interns. A lot of them eventually moved on because they wanted to pursue degrees. But we had, I think still in the company, around 50 to 60 of them. This year we wanted to target to double that number (EY.1).

As the participants noted, the COVID-19 pandemic severely interrupted the process of selecting and placing students into work immersion. It particularly constrained the possibility of companies recruiting a larger number of students.

After the recruitment process is done, students are placed into relevant work immersion settings, mainly based on their learning needs and availability of the work in the company. For example, students from the ABM track are often assigned to the accounting department in a company. One participant from a production company explained the placement of students:

[The placement of students] depends on the nature of the jobs where you hire the K to 12 graduates like in the production? What types of responsibilities or tasks would they have? It depends on what section they will be assigned to. We have many sections actually for our production. We have mostly in packaging, they will be the ones to pack the, yes, the hotdogs, the hams and other frozen goods (EY.4).

Most participants stated that schools and companies worked collaboratively to help students learn what they are expected to learn during the work immersion, ensuring that the work immersion program is aligned with the school curriculum, the curriculum guides and the work immersion guidelines. One supervisor is assigned from the school side and one from the PI to work together to help students meet the learning expectations. Some participants explained that the company or the supervisor was given guidelines on the training course from the school. Guidelines indicate what students should learn during their work immersion, and the supervisors could check guidelines daily to make sure that students were actually learning.

However, there was no clear agreement among participants regarding the appropriate duration of work immersion programs. According to the work immersion guidelines, schools are given the flexibility to formulate various models of work immersion which should range from 80 hours to 340 hours of work immersion distributed over multiple terms (DepEd, 2017). As participants in the study indicated, some students had their work immersion with the company for one month or one semester, depending on the purpose of the work immersion, learning needs, and capacities of the company.

The study highlighted that employers valued the process of collaboration with schools and other relevant stakeholders in designing and implementing the work immersion. They viewed it as a reflective process which enabled them to see room for improvement in their partnership with schools and the delivery of the work immersion. Participants highlighted some areas that required improvements, including improving and adjusting the curriculum to help students learn more relevant and employable skills and knowledge.

Impacts of the Implementation of the K to 12 Curriculum on Recruitment Policy

The implementation of the K to 12 Curriculum had minimal impact on the recruiting policy or requirements of the companies. Participants from food production companies explained that they recruited any applicants or workers of official employable age in good health, although they might not have their high school diplomas. One participant commented on the situation:

For us, ma'am, for other positions aside from production, we really hire people who have qualifications. Yes, we are particular with the courses that they graduated during college but in our production workers as long as they are 18 years old and above, we will accept them (EY.3).

In this example, approximately 80% of employees in the participant's company did not have university degrees. In contrast, business processing or service provider companies tend to focus on qualifications and most of their employees are university graduates, with a small number of employees only being high school graduates. In both cases, all companies offer training to employees after they are recruited to help them prepare for the job. Therefore, changes in the curriculum do not appear to have any effects on the recruitment processes of the companies.

Preparedness of Graduates of the K to 12 Curriculum for Employment

Participants shared mixed views on the preparedness of graduates of the K to 12 Curriculum for employment, with most agreeing that the K to 12 graduates are more mature, show more understanding in their work, and can better adapt to the working environment than those of the K to 10 Curriculum. Also, participants complimented the information communication technology (ICT) skills that many K to 12 graduates possess. These skills give the graduates an advantage in employment because such skills are increasingly needed in various workplaces. One participant highlighted:

We can assign them to clerical positions in the office or encoding because most of the millennials are very computer savvy. And maybe they can also be tapped for digital marketing because now, I remember we have three students coming from one of [the ...] schools and they had good inputs in terms of marketing and selling online (EY.4).

However, participants also expressed hesitation about hiring graduates of the K to 12 Curriculum, with those from the production firms explaining that they were looking for those with good attitudes, work ethics, and good maturity in the work process which the graduates may lack. They added that positions associated with production did not require high school qualifications as long as they are over 18 years of age and mentally and physically healthy. Once hired, the unskilled workers can be trained to do the job because this kind of work does not require complicated knowledge and skills. One participant explained:

Another thing about bakery food production is that it's actually a vocational course that they can learn. They don't need a four-year college degree. But they can be trained on certain aspects of the work so that they would be effective (EY.3).

Other than in positions for production university qualifications were required by participants, leaving little chance for the K to 12 graduates to compete for immediate employment, although participants from the business processing company indicated that some positions were open to both SHS graduates and fresh university graduates.

Participants expressed concern that many K to 12 graduates still appeared to lack the 21st century skills or soft skills necessary for them to be successful in their work. Necessary skills include problem-solving, communication, decision making, and teamwork. One participant highlighted the lack of soft skills:

They are even the same and above, you know, they're at par. That's why I don't really see, we don't really see any technical differences between the K to 12 graduates and those of the K to 10 Curriculum in terms of comprehension of the process and putting it together into the work that they do. I do have some concerns about the professional skills or soft skills (EY. 2).

Ways to Improve the Implementation of the K to 12 Curriculum

When asked what should be done to improve the implementation of the K to 12 Curriculum and especially to prepare students for employment, most participants drew attention to developing professional knowledge and skills: core or foundational competencies which are required for particular jobs, such as those needed for accounting or baking. They also emphasised the importance of equipping students with the 21st century skills, as these are of great help for their further education, and especially for employment.

Discussion

The data sources used in this review, national testing and focus groups with participants from higher education and employment, provide a consistent message about student attainment: students are not attaining skills and knowledge at levels expected by the intended curriculum. The national testing data shows that the trend is consistent across the grade levels, with low levels of attainment observed at Grades 3, 6, 10 and Senior High School. The data from focus groups with higher education providers and employers corroborates the findings that graduates, typically, do not have the foundational skills expected. This finding is in keeping with the results of the Review of the Implemented Curriculum (Robertson et al, 2020), which showed that teachers do not have sufficient time to teach all the allocated learning competencies, making it impossible for students to learn all that is intended. There is, however, an interesting mismatch between the low levels of attainment shown in the national testing, and teachers' perceptions of the extent to which students have the prerequisite skills and knowledge required. While both reported lower than desirable student attainment, the test data paints a much bleaker picture than that evident in the teachers' perceptions. Although it is not possible to be certain about the origin of this difference, studies of Philippine teachers' formative assessment practices suggest that teachers may not be using formative assessment well enough to accurately judge prior student knowledge (Cagasan, et. al., 2020, Griffin, et. al., 2016), suggesting more weight be placed on these findings of the Review of the Tested Curriculum.

The attainment of 21st century skills follows a similar trend to that of overall attainment, with all data sources in this review showing that student attainment is also lower in this area than the curriculum intends. Data from focus group discussions with higher education providers indicated that while K to 12 graduates have greater maturity when they begin higher education than was typical for graduates of the previous Basic Education K to 10 Curriculum, only the increase in their research skills was noted. Data from employers was more explicitly critical, with no differences observed in 21st century skills between graduates of the K to 12 Curriculum and those of the past curriculum. While accounting for this is beyond the scope of this study, potential causes include the lack of a consistent 21st century framework across DepEd (Robertson, et. al., 2021), and inconsistencies between the intended curriculum and international expectations in this area (Balagtas & Montealegre, 2020; Scoular, 2020). Taken together, these reports suggest that student attainment of 21st century skills would be improved through the explicit inclusion of a 21st century skills framework within curriculum documents and adjustments to the current curriculum content.

DepEd's current national testing structure is not structured in a way that allows the monitoring of general trends in student achievement. It would be advantageous for DepEd to have access to such information to enable the evaluation of innovations targeted at improving student outcomes. Without a way of comparing performance across years and cohorts, DepEd is unable to evaluate the impact of changes on student learning. At present, although consistent specifications for the national tests are used across the years, the tests are not designed to report on a common scale (Robertson, et. al., 2021), as would be necessary in order to monitor achievement trends over time. This could be achieved with only small changes to the specifications for the national tests and a greater investment in data analysis. The outcomes of such changes could have far-reaching benefits for monitoring and evaluation across DepEd.

Many of the higher education representatives who participated in the focus group discussions had experience supporting SHS teachers implementing the curriculum, either within SHSs attached to their

universities, or more broadly. These representatives noted that many teachers had not been adequately prepared or trained to take up the changes in curriculum content required by the Grades 11 and 12 curriculum, leaving them unable to deliver the curriculum effectively. This aligns with the finding in the Review of the Implemented Curriculum, which identified teacher professional learning as a potential influence on the ability of teachers to implement the intended curriculum (Robertson, et al., 2020).

Participants in the higher education focus group discussions also noted that the lack of access to the full range of SHS tracks and strands compromised the preparation of some students for the higher education courses of their choosing. Focus group participants raised concerns that some strands within the Academic and TVL tracks were not available in some SHSs and students, therefore, had to choose different ones which were not their primary interest. Similarly, some regions did not have higher education options available that linked with the tracks and strands provided in local SHSs. Consequently, many students have been forced to take bridging courses or change directions, as the tracks and streams they had undertaken in SHSs were not aligned to their aspirations. This concurs with the findings of a study involving 34 public and private schools which showed that no school offered all strands in 2018, suggesting that not all schools were ready to fully implement the SHS curriculum (Orbeta, et al., 2018). Although it is not feasible for all SHSs to offer all tracks and streams, the current limitations are problematic. Improvements in career guidance and counselling could also improve the current situation as K to 12 graduates transition to higher education and employment.

Conclusion

The Review of the Attained Curriculum provides a detailed analysis of the attainment of curriculum expectations via national test data and higher education provider and employer views on the suitability of K to 12 graduates for higher education and employment. The review shows that students are not attaining the curriculum expectations, either in foundational understandings or in 21st century skills. This has an impact on the future development of students, both for those going on to higher education and for those moving directly into employment. Higher education institutions and employers have felt the need to support K to 12 graduates through the provision of post-school bridging courses and in-house training programs. Both higher education and employer representatives expressed the importance of further improvements within the K to 12 provisions to better support students to achieve the curriculum expectations.

References

- Balagtas, M. U., & Montealegre, M. A. C. (Eds.). *Challenges of PISA: The PNU Report*. Philippine Normal University; Rex Institute for Student Excellence, Inc. <https://www.pnu.edu.ph/challenges-of-pisa-the-pnu-report/>
- Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3(2), 77-101.
- Bryman, A. (2012). *Social research methods* (4th ed.). Oxford University Press.
- Cagasan, L., Care, E., Robertson, P., & Luo, R. (2020). Developing a formative assessment protocol to examine formative assessment practices in the Philippines. *Educational Assessment*, 25(4), 259-275. <https://doi.org/10.1080/10627197.2020.1766960>
- Department of Education. (June 2017). *Guidelines for work immersion* (DepEd Order No. 30, s. 2017). Republic of the Philippines. https://www.deped.gov.ph/wp-content/uploads/2017/06/DO_s2017_030.pdf
- Department of Education. (June 2020). *Adoption of the Basic Education Learning Continuity Plan for school year 2020-2021 in light of the COVID-19 public health emergency* (DepEd Order No. 012 s. 2020). https://www.deped.gov.ph/wp-content/uploads/2020/06/DO_s2020_012.pdf
- Dougherty, C., Mellor, L., & Smith, N. (May 2006). *Identifying appropriate college-readiness standards for all students* (NCEA Issue Brief #2). National Centre for Educational Accountability. <https://files.eric.ed.gov/fulltext/ED543027.pdf>
- Enhanced Basic Education Act of 2013. (2013). Republic Act No. 10533. Republic of the Philippines. <https://www.officialgazette.gov.ph/2013/05/15/republic-act-no-10533/>
- Griffin, P., Cagasan, L., Care, E., Vista, A., & Nava, F. (2016). Formative assessment policy and its enactment in the Philippines. In D. Laveault and L. Allal (Eds.), *Assessment for learning: Meeting the challenge of implementation*, 75-92. Springer.
- Hennink, M., Hutter, I., & Bailey, A. (2011). *Qualitative research methods*. Sage Publications.
- Orbeta, A. C. Jr., Lagarto, M. B., Ortiz, M. K. P., Ortiz, D. A. P., & Potestad, M. V. (December 2018). *Senior High School and the labor market: Perspectives of Grade 12 students and human resource officers* (Discussion Paper 2018-49 Revised). Philippine Institute for Development Studies. <https://www.pids.gov.ph/publications/6762>
- Robertson, P., Cagasan, L., Guanio, K., Nepomuceno, J., Kheang, T., Bustos, T., Rickards, F. & Ferido, M. (2021). *Review of the Tested Curriculum*. Assessment Curriculum and Technology Research Centre.
- Robertson, P., Cagasan, L., Kheang, T., Bagui, L., Dela Cruz, J., Rickards, F., Ferido, M. & Bustos, T. (2020). *Review of the Implemented Curriculum*. Assessment Curriculum and Technology Research Centre (ACTRC).
- Robertson, P., Cagasan, L., Kheang, T., Bagui, L., Dela Cruz, J., Rickards, F., Ferido, M. & Bustos, T. (2020). *Review of the Implemented Curriculum*. Assessment Curriculum and Technology Research Centre.
- Scoular, C. (2020). *Analysis of 21st century skills integration as applied in the Philippines K to 12 program. Final report*. Australian Council for Educational Research. <https://research.acer.edu.au/curriculumdevelopment/1>
- Squires, D. (2012). Curriculum alignment research suggests that alignment can improve student achievement. *Clearing House: A Journal of Educational Strategies, Issues and Ideas*, 85(4), 129-135. <https://doi.org/10.1080/00098655.2012.657723>
- UNESCO International Bureau of Education. (2013). *IBE glossary of curriculum terminology*. <http://www.ibe.unesco.org/en/glossary-curriculum-terminology>

ACTRC is a partnership between
the University of Melbourne and the
University of the Philippines, supported
by the Australian Government.

ACTRC